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**Consumers attitudes towards meat substitute products and key  
factors influencing the decision-making of Finnish consumers**

Bachelor's thesis

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I hereby declare that I have compiled the thesis independently and all works, important standpoints and data by other authors have been properly referenced and the same paper has not been previously presented for grading.

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## **ABSTRACT**

Meat has a very important role as a source of protein and its demand is rising as the human population grows day by day. Animal-based meat has always been a popular source of protein and changing the “normal” can be challenging. Due to the increased awareness of the negative impact that animal-based meat consumption and production has on the environment, health and animal welfare have forced the consumer to think more environmentally friendly and examine healthier and more ethical options. According to previous studies, consumer-decision making is one of the most researched areas and it is affected by several different factors such as culture, past experiences, and personal situation. Consumers that do purchase meat substitute products are aware of the impact that the industry of traditional meat does to the environment and seeing meat substitute as a healthier option. Different choices of meat substitute products are available and the number of different products, is increasing rapidly and it is granting more options for every individual to choose from. The purpose of this study is to find out what are the attitudes of Finnish consumers towards meat substitute products and what are the key factors that are affecting their purchase behavior. The quantitative research method is used in the study and the survey was conducted and distributed via social media. An online questionnaire was conducted to gather data and the total number of responses was 100. Descriptive analysis was used. Major findings of the study showed that consumers have a positive attitude towards meat substitute products, and they are willing to increase the consumption of meat substitute products and change their consumption behavior if the barriers such as price, taste, texture, and unfamiliarity of the products would improve.

Keywords: Meat substitute products, Consumer attitudes, Consumer decision-making

## **INTRODUCTION**

A growing global population, changing socio-demographics and economic development are placing multifaceted pressure on the world's diminishing resources to provide more food and not only muscle-based but different types of food (Henchion et al., 2017), and it is a massive challenge to provide substitutes to meat since it is appreciated highly, it is familiar and has a significant role in our lives as a source of protein. (Wansink et al., 2005). As the population grows, the awareness of environmental issues caused by livestock farming, animal welfare, and health issues are recognized and the interest of a consumer is pointing towards plant-based products, which are seen as more sustainable, ethical and healthy. (Lee et al., 2020) The constantly rising demand for animal-based protein harms our environment, generates greenhouse emissions and major chunks of land and water are used over the environmentally friendly limit. (Henchion et al., 2017) People see that the way that livestock is treated is unethical and thus, affecting consumer behavior towards more ethical, plant-based products. Meat has especially red meat, a relatively high amount of fats, saturated fatty acids, and salt, and a lack of dietary fiber, vitamins, and micronutrients. (Lock et al., 2010) High consumption of meat is connected to health issues, such as cancer, diabetes, and cardiovascular disease, which are causing the shift away from animal-based meat. (Food and Agriculture Organization of the United Nations, 2006)

Throughout our history, meat has had a stable and firm position in the food basket. Meat has been consumed by humans since the pre-historic era because of its high-quality proteins, tastiness, fast source of protein and nutrients. (Latvala et al., 2012) The human body needs proteins and nutrients to be able to function properly and meat has been the most important source since the start of the human era. (Elmadfa and Meyer, 2017) Around 15% of the proteins that contain all the necessary amino acids, fatty acids, and micronutrients such as vitamin B, are obtained through the meat that humans consume. (de Smet and Vossen 2016)

Since the 1960s, the demand for animal-based foods has been increasing to this day. The increase is due to the qualities of meat, the development of the meat industry, increase in average income,

and rising standard of living, thus the preferences towards food are changing. Even though the increase in animal-based meat demand has been fast, there is no end in sight. The population is expected to reach over 9 billion in 2050 and the global need for animal-based meat is projected to be more than double what it is now. (Bonny et al., 2015; Food and Agriculture Organization of the United Nations, 2006) Although the negative impact that animal-based-meat consumption and farming is known by the consumer, meat substitute products have not acquired acceptance amongst consumers yet. Previous studies indicate that lack of knowledge of the products and the texture and taste differs too much from the traditional meat and there is a lot to improve in mouthfeel, flavor, and appearance to change consumption behavior by reducing meat. (Hoek et al., 2011; Lee et al., 2020) The need for meat substitute products is increasing fast since today, the production and usage of natural resources are at their maximum capacity and it can be seen on the negative impact that it has on our environment. The need for meat substitute products to step in and find the way to customers' diet is urgent and our demand for animal-based meat cannot be fully satisfied anymore. (Lee et al., 2020)

Meat substitute products can be part of our future alongside animal-based products if a healthy relationship with their consumption is found. (Lee et al., 2020) Approximately 1% of the world's population, are defining themselves as vegetarians and have a healthy and balanced diet without animal-based products. Although the number of vegetarians is increasing slowly and the growth of the plant-based market is expected to increase in the following years, more people are needed to accept meat substitute products in their diets to ease the environmental pressure. (Meyer, 2021; UBS, 2019) Consumers have learned to prefer familiar foods, and trying new ones is not comfortable. Previous studies show that there is a huge gap in taste and texture between meat substitute products and animal-based products. If success is wanted in decreasing the consumption of meat and consume more substitute products, mouthfeel and taste need to be more like meat. (Aiking et al, 2006; Tuorila and Hartmann, 2020)

The research problem is the lack of knowledge about the consumer attitude towards meat substitute products and which factors are affecting the consumer's purchase decision. The awareness of our diminishing natural resources and environmental issues regarding meat consumption and production is rising, more studies are needed about consumption purchase behavior amongst different cultures. To be able to achieve acceptance amongst customers towards meat substitute products, the factors that affect the purchasing behavior of meat substitute products need to be studied further. (Hoek et al., 2011)

This study aims to find the attitudes toward meat substitute products and key factors which are affecting the decision-making amongst Finnish consumers. Existing literature was reviewed to form a theoretical framework and research questions. Findings from the study are ought to provide crucial information about how organizations can further develop meat substitute products and where to focus on. In addition, this study provides different perspectives for a consumer to examine and challenge their attitudes and beliefs towards meat substitute products.

This study is aiming to answer the following research questions:

RQ1: How consumers' attitudes towards meat substitute products are affecting purchase decisions?

RQ2: Which are the key factors that influence consumers purchasing decisions regarding meat substitute products?

RQ3: Which factors would increase the consumption of meat substitute products?

This study will benefit firstly companies that are producing meat substitute products. This study provides factors that consumers see as motivators and barriers when making purchase decisions whether to buy or not to buy a meat substitute product. Secondly, this study will help marketers to find out what are the attitudes towards meat substitute products and how customers are perceiving them. It will help marketers to focus on the biggest factors that affect attitudes towards purchasing meat substitute products and find a way to make these products more appealing and customized for every individual.

The first chapter provides the theoretical framework and in more detail, consumer behavior and attitudes. The theory of planned behavior is used as a theoretical lens in this study. Also, the factors affecting consumer behavior, decision-making process, and environmentally friendly consumer behavior are discussed. The second chapter is providing information about meat substitute products. A clear definition of a meat substitute product is given, markets of meat substitute products in the world and Finland are discussed, and challenges that meat substitute products are facing, gone through. The third chapter provides research methodology. It provides information about the research plan and its design and data collection. The fourth chapter is providing the research results and analysis where all the data is gone through. Also, a discussion about findings

is included in this chapter. After there chapters the study provides conclusions, where limitations and recommendations for future studies and suggestions to companies and marketers are provided. The last pages of the study provide a list of references and two appendices which provide the questionnaire and the results of the questionnaire.

# **1. THEORETICAL FRAMEWORK**

This chapter grants a theoretical framework on consumer behavior and consumer attitudes. In addition, different factors that are influencing consumer purchase behavior, consumer decision making, and environmentally friendly consumer behavior are discussed.

## **1.1 Consumer behaviour and consumer attitudes**

Consumer behavior does not only cover the act of buying, it is much more, how having or not having is affecting our lives. It is also a study about how our thoughts about ourselves and others are influenced by what we own. (Solomon, 2006) As a field, consumer behavior is a very widely covered area that includes different processes involving individuals or groups that are selecting, purchasing, using, or disposing of services, experiences, ideas, or products to get the satisfaction of needs and desires. (Solomon, 2010) In the past, marketing has focused only to fulfill the customers' needs when it comes to making a purchase. (Yang et al., 2007) In the present time, it is essential for marketers and companies to understand the attitudes, values, and beliefs of a customer because those factors have a major impact on customer behavior. Marketers have already succeeded to change customers' attitudes towards a certain product which has lead to a positive change in consumption of the product. (Ikechukwu et al., 2012)

Attitude is a hypothetical construct and it is an individual's response of positiveness or negativeness towards an object, people, or event. (Ajzen, 2005) When individuals are forming certain thoughts about an object, they simultaneously are shaping attitudes towards it. Attitudes are formed spontaneously and automatically, so whenever individuals form new beliefs towards an object, person, or event, and connect them to previously known beliefs, whether the object is familiar or unfamiliar, new attitudes are formed. This means that individuals are forming new attitudes every single day towards objects etc. they are facing in their everyday lives. (Fishbein and Ajzen, 1975)

The theory of planned behavior, conducted by Ajzen (1988, 1991) is an extension to the theory of reasoned action which was conducted by Fishbein and Ajzen in 1975. The theory of planned behavior gives much greater variance in intention and behavior, comparing to the theory of reasoned action. (Armitage and Christian, 2003) The central idea of the theory of planned behavior is to predict an individual's intent to perform a certain action. Intentions are guiding individuals' behavior in a controlled fashion. They are also assumed to catch the motivational factors that are affecting to individual's behavior and they can be used as indicators of how much of an effort an individual is willing to make to perform a certain behavior. Mainly the general ruling of the theory is that the stronger the intention is to perform a certain behavior, there is a higher possibility that the behavior is performed. (Ajzen, 1991) The theory of planned behavior has been applied to meat consumption many times in previous studies (Graça, 2016) and it will be used in this study as well as a theoretical lens.

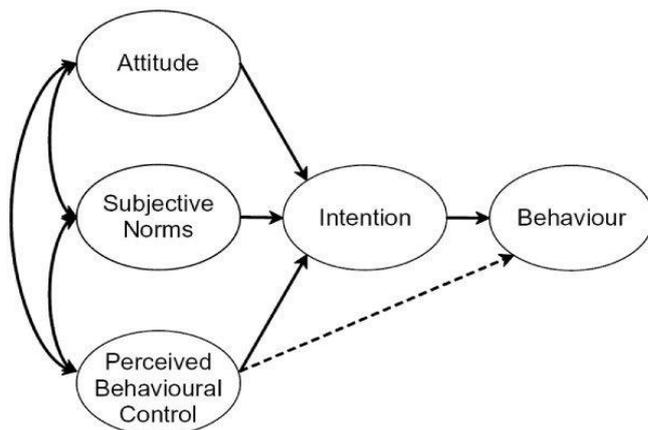


Figure 1: Theory of planned behaviour

Source: Ajzen, I. (1991) The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211

According to the theory of planned behavior, there are three main things to consider when thinking about what is guiding individuals' behavior which are behavioral beliefs, normative beliefs, and control beliefs. Behavioral beliefs are forming either negative or positive attitudes towards the consequences of a behavior. Normative beliefs are the beliefs that are perceived from social pressure or subjective norm, for example from people important to you and how they think you should or should not perform a certain behavior. Control beliefs are beliefs about how an individual is perceiving a certain behavior as easy or difficult to perform. As a combination of attitude toward

behavior, subjective norms, and perception of behavioral control, an individual is forming a behavioral intention. (Ajzen and Fishbein, 2000)

## **1.2 Factors influencing consumer behaviour**

Multiple factors have an influence on the consumer buying behavior and usually, the consumer does not even know what precisely are the characteristics that influence their buying behavior. The final decision to purchase a good, service, etc. is a mixture of all the different factors and therefore marketers have a nearly impossible job to control them, but it is important to understand them and take them into account. Factors that affect consumer purchase behavior strongly, can be divided into four groups that are: cultural, social, personal, and psychological characteristics. (Kotler and Armstrong, 2011)

**Cultural factors** have a significant and broad impact on consumers' behavior. It can be divided into three parts: culture, subculture, and social class. Different behaviors, values, perceptions, and wants are all learned from people close to you like family, friends, and other important institutions, and are part of a culture. Each group or society has a culture that can vary in many different countries. Therefore, when the culture is different in different societies, the buying behavior can change dramatically in different countries. Subculture forms groups inside of the culture. These groups can be formed through similarities in life, like regions, ethnicity, or experiences. Different cultural and subcultural groups can have very different characteristics and their buying behavior can be far from each other. (Kotler and Armstrong, 2011) Usually, in every society, there are different social classes, who share the same values and interests. When determining social class, it cannot be done by stating only one or two factors, but it is a combination of many, such as education, occupation, and other factors. Social classes contain similar people and, they have a lot of identical preferences and buying behavior does not differ much. (Kotler and Armstrong, 2011)

**Social factors** like reference groups, family and roles, and status, have a great impact on consumer behavior. Where family and other small groups create direct influence on the consumer, reference groups provide a direct impact face-to-face or indirect influence that affects consumers' behavior and attitudes. A consumer who is affected by reference groups is not usually part of them and from there, the consumer is exposed to a different style of living and

behavior, for example, a small boy or girl watching some pro athlete and wanting to become a pro athlete as well.

The family has the highest impact on consumers' behavior and effects on behavior and attitudes to other consumers inside the family. Often the final decision of purchase is made by another member of the family, which has an influence on others as well. Every person has multiple groups that they belong to, for example, sports teams, family, friends, and other organizations and communities, where each and everyone has their own status and role. Consumers buying behavior and selecting a product, are affected by the role he or she has in their groups. If we think about all the roles a working father has, there are many. At work, he has a business to run and a lot of employees and to them, he is the boss. He goes home and is a father and a husband and at his hobbies, he is a captain and a team member. All these roles that one consumer plays affect buying behavior. (Kotler and Armstrong, 2011)

**Personal factors** have an impact on consumers' buying behavior as well. Those characteristics are age and life-cycle stage, occupation, economic situation, lifestyle and personality, and self-concept. Consumers do not consume the exact same products all their lives, and preferences towards clothing, food, and hairstyle are influenced by our age. For example, younger consumers prefer clothes that are colorful and stand out, whereas elder consumers prefer clothes that have more subtle colors. Buying behavior is also shaped by demographics and changes happening in our lives such as having children, acquiring a new job, retirement, or divorce. These changes are defined as life-cycle stages and buying behavior is changing as the stage is changing. Occupation is one of the characteristics that have a significant impact on individual customers' buying behavior. Consider an executive leader in a major company, he uses suits at work and warehouse worker has more rugged work clothes. Also, the executive is more likely to buy luxury products than warehouse worker, so our economic situation also has a very direct impact on the buying behavior and what products to choose.

The lifestyles of consumers from different occupations, social classes, and subcultures can differ a lot. Lifestyle is a broad concept that means the pattern that a person is living and shows how consumers act and interact in the world. Consumers are not just buying products because they like them, they also are buying the values and lifestyles that the products represent and products that are fit to their me-image and show who they are. Personality and self-concept must be taken into account when considering buying behavior and traits like dominance, defensiveness, and

aggressiveness are used to clarify the concept of personality. Every person is unique and has characteristics that differ from others. Consumers are choosing the product based on how well the product is reflecting their own personality. (Kotler and Armstrong, 2011)

**Psychological factors** that affect consumers' buying behavior, can be divided into four main factors that are: motivation, perception, learning, and beliefs and attitudes. Motive can be described as a need that makes an individual seek satisfaction. When it comes to the level of motivation, consumer buying behavior is affected by it. One of the most famous theories on motivation is Abraham Maslow's hierarchy of needs. The theory is based on that every individual's needs are arranged in a hierarchy and it is divided into five different stages that are: physiological needs, safety needs, social needs, esteem needs, and self-actualization needs. The theory is shown as a pyramid, where the most important needs that person is trying to satisfy are at the bottom and the least important at the top.

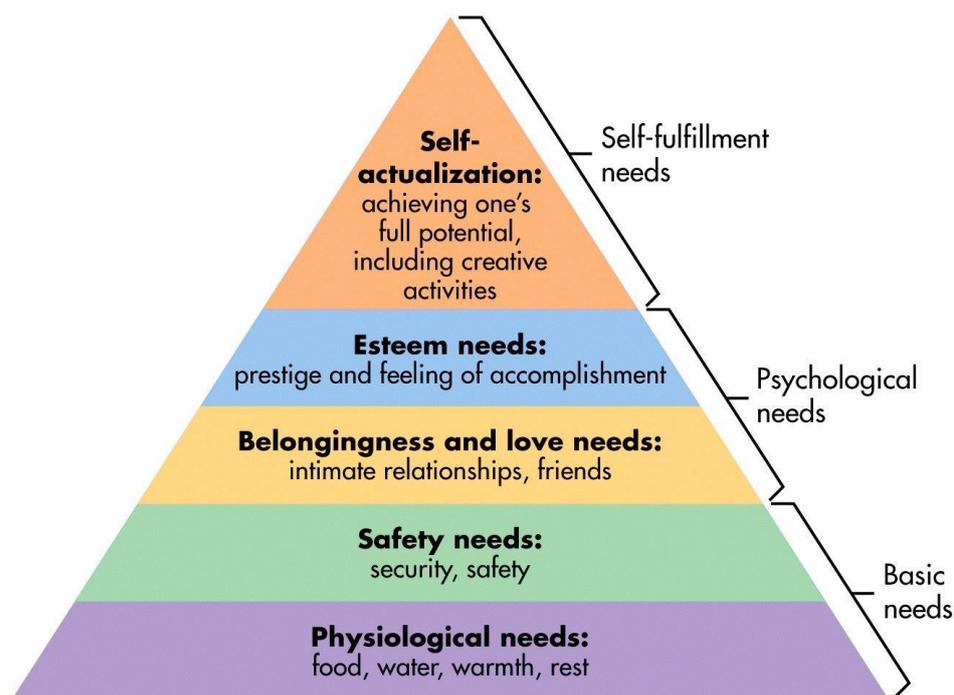


Figure 1: Maslows Hierarchy of Needs

Source: Philip Kotler, Gary Armstrong: Principles of Marketing (14th Edition) (2011).

Perception is an active process where people interpret information to create a certain picture of everything around them. People can interpret things very differently, and how an individual is affected by his or her own perception, has an influence on their actions. Previous experiences

change consumer behavior through learning. Psychological factors finally include beliefs and attitudes. Belief is described as an understanding or a thought regarding a certain thing and attitude is described as feelings towards something. Every customer has their unique attitudes and beliefs thus they are not necessarily the ultimate truth, but only individuals' thoughts and feelings. (Kotler and Armstrong, 2011; Solomon, 2010; Gajjar, 2013)

### 1.3 Consumer decision-making process

Decision-making is a high-level cognitive process based on cognitive processes like perception, attention, and memory (Prezenski et al., 2017). Consumers become aware of a need or want and a possible means of satisfying it (Baker, 2003). It is a long process, and it includes five different stages which are: need recognition, information search, evaluation of alternatives, purchase decision, and purchase behavior. Although there are five different stages, it does not mean that consumers will necessarily go through all of them. A woman buying her regular brand of toothpaste would recognize the need and go right to the purchase decision, skipping information search and evaluation (Kotler and Armstrong, 2011).



Figure 2: Buyer Decision Process

Source: Philip Kotler, Gary Armstrong: Principles of Marketing (14th Edition) (2011).

The first stage of the buying process is needed recognition and the consumer realizes that there is a need or problem that needs satisfaction. Internal stimuli like thirst can trigger the need and also it can be triggered by external stimuli like an advertisement. The second stage of the model is information search. In this stage, the consumer is seeking more information about something that he or she needs. Information can be gathered from several different sources such as personal sources, commercial sources, and public sources. (Panwar et al., 2019, Kotler and Armstrong, 2011) At the third stage, the customer will evaluate the alternatives to find his or her way to the best possible decision when making a purchase decision. It is not a simple evaluation, but a combination of many different processes. (Kotler and Armstrong, 2011) How consumers go about evaluating purchase alternatives depends on the individual consumer and the specific buying situation (Kotler and Armstrong, 2011). Sometimes logical thinking and specific measures will be

done before making the final decision. On the other hand, sometimes customers trust their gut and make the purchase decision on impulse. Purchase decision as the fourth stage is where the customer makes a list from favorite to least favorite brands and purchase intentions are made. The decision will be based usually on the most preferred brand but two factors can make a difference. Others and their attitudes are a factor that can tilt your decision in a different direction if someone for example inside your family tells you to go with another brand that you had listed on the top. Income, price, and product benefits can affect the purchase decision as well and they are called situational factors. The consumer can also make a decision not to buy due to different factors such as a shaky economic situation or bad review of desired brand or product and intent to buy a certain product does not always lead to the action of purchase. The fifth and final stage, postpurchase behavior, consists of satisfaction or dissatisfaction, regarding the bought product or brand. When the customer is satisfied after the purchase of a product, it may lead to more purchases in the future from the same brand and if not, it may lead to avoidance of that product or brand. (Kotler and Armstrong 2011) This five-stage model is important for marketers to consider the whole process rather than only the purchase decision and to find sources that affect the consumer the most. (Panwar et al, 2019)

#### **1.4 Environmentally friendly consumer behaviour**

Environmental behavior is based on the idea of minimizing the negative influence of one's behavior on the environment (Kollmuss and Agyeman, 2002). Environmentally friendly consumer behavior does not mean only the purchase decision but also non-purchasing decision. Using public transport rather than private, reduction of energy and water consumption, recycling, supporting organizations that are environmentally friendly, etc. are also part of environmentally friendly consumer behavior. (Mataraci and Kurtulus, 2020)

Green consumerism can be referred to as those consumers who are recognizing that Earth has limits on its resources, are purchasing environmentally friendly products, and supporting methods of production that do not harm the environment. (Jaiswal 2012) The green consumer is often described as also more internally controlled since they have strong faith that a single person can make a difference in the fight to protect the environment. (Boztepe, 2012) Green consumerism can be also considered ethical since the activities that are connected to it, such as the purchase of

organic food, usage of recycled materials and recycling are saving natural resources that are under a lot of pressure and protecting the environment. (Papaoikonomou et al. 2011)

In the modern-day, globalization is going forward at a fast pace across the whole world and it causes negative aspects as well. Environmental issues all over the world such as global warming, air pollution, and emissions are affecting negatively to all living things and during the past couple of years, the negative side has been raised to the spotlight and people, and the media has started to confront the issue in a very openly. Due to all this concern, consumers have started to choose more environmentally friendly products, that are not straining our environment that much. (Boztepe, 2012) Society has started to see that we need to take action towards protecting our environment and not take it for granted, because otherwise, it can not take the load it bears much longer. (Leonidou and Leonidou, 2011)

The objective of sustainable marketing is to satisfy the consumers' needs and at the same time, protect our environment. Due to the fact that the worry towards our environment is becoming more of a reality to the people all over the world, changes consumer behavior. Consumers are used to satisfying their own needs and nothing else, but nowadays there is also the worry about the environment. (Mataraci and Kurtulus, 2020) Even though many of the consumers are voting for sustainable and green products, many of the consumers are struggling to convert this attitude to the actual purchase decision. (Schuitema and de Groot, 2014) Motivation seems to be the issue when making a purchase decision about an environmentally friendly product. (Carrigan & Attalla, 2001) Self-interested motives are major factors that influence environmentally friendly purchase behavior in all consumer groups. The problem is that consumers are not capable to harmonize self-interest and environmental values and are not ready to make a compromise. Consumers need to be able to combine their environmental values and self-interests into their self-image, so the environmentally friendly purchase decision could be made more regularly. (Eberhart and Naderer, 2017)

As Boztepe's study shows, environmental consciousness is one huge factor affecting consumer purchase behavior. (Boztepe, 2012) Also, lifestyle and involvement factors have a significant impact. The biggest influence on environmentally friendly purchase behavior has the purchase intention and environmental awareness, such as recycling. The need of saving money is affecting environmentally friendly consumption behavior as well as the need to achieve an economical advantage. People with healthy and stable lifestyles are more likely to have more positive attitudes

towards environmentally friendly products than those who are not caring as much about healthy eating, thus there is a need to change consumers' lifestyles in order to make changes in environmentally friendly consumer behavior. (Mataraci and Kurtulus, 2020.)

## **2. INFORMATION ABOUT MEAT SUBSTITUTE PRODUCTS**

### **2.1 Definition of meat substitute**

Meat substitutes also referred to as meat replacers, meat alternatives, or meat analogs, are protein-containing foods that are primarily vegetable-based (Hoek et al., 2011). Wheat, soybean, legumes, oilseeds, and fungi are the main sources of protein that are used to make these substitute products, but also new sources of protein such as seaweed and insects are being used. (Aiking, 2011; Hoek et al., 2011, Asgar et al., 2010) Plant-based protein is one of the oldest sources of protein that has been used over history and a soy product called tofu, has been produced in China approximately for 2000 years. (Lee et al., 2020; Shurtleff and Aoyagi, 2007) The consumption of plant-based proteins has been increasing over years due to the shortage of animal protein and diseases that are occurred on the animals. Also, why the demand has been growing towards plant-based products is due to economical, ethical, health-related, and religion-based reasons. (Asgar, et al., 2010) These factors and increased vegetarianism have caused an instant pressure on plant-based production, and focus needs to be put towards nutrient specifications, so plant-based products could meet the same nutritional specifications as traditional meat. (Joshi and Kumar, 2015; Copelton, 2006)

### **2.2 Meat substitute markets**

Without a question, markets for meat substitute products have been increasing rapidly over the couple of years due to the recognition of environmental, animal welfare, and health issues that production and consumption of animal-based meat causes. (Wild et al., 2014) With the lead of Sweden, the United Kingdom, Italy the Netherlands, Germany, and France, Europe is way ahead of the rest of the world and thus is dominating the whole meat substitute markets. As a single country, the United States of America has by far the biggest markets for meat substitute products. Although there are currently yet only relatively small companies producing meat substitute products, markets for meat substitute products are expected to rise over 10% by the end of 2029

due to the interest that the biggest companies have in meat substitute products, and readiness to start producing their meat substitute products. (Richter, 2019) According to the survey by Bryant et al., (2019), there could be a market in China and India as well, since those countries were measured to have the highest acceptance towards meat substitute products, over 94% in both countries. Compared to the United States of America, which is leading the meat substitute markets in a single country, had acceptance under 75% so there is a huge possibility for the future of meat substitute markets to expand to Eastern countries.

In Finland, gained popularity of meat substitute products has been increasing the markets rapidly. Meat substitute products can be found in almost every supermarket there is and there are usually their shelves for them. Many known Finnish food companies have started to produce their meat substitute products which have increased the awareness of these products enormously. Different new meat substitute products are made constantly, and the availability is increasing, which has made meat substitute products more appealing to non-vegans also. Demand for meat substitute products in Finland is increasing every year and it is expected to grow for many years forward due to the increasing production and development, and the quickly growing trend. (2018)

### **2.3 Challenges meat substitute products are facing**

Even though meat substitutes are seen as a healthy and environmentally friendly option, there are many challenges that those products are facing. Habits, beliefs, and attitudes towards meat substitute products, are having a negative impact on accepting meat substitutes to the diet. (Aschemann-Witzel et al., 2020) To get the consumer to make a decision towards meat substitute products, there needs to be a change in consumers' attitude, and it creates difficulties. It is not only to get the acceptance of meat substitute but also to replace the meat in the diet as well. Meat substitute products are meant for everyone and not only vegetarians, so there is also a challenge to make the new customer interested and make the purchase decision, and also those who are already using alternatives, to get them to use those products more often. (Hoek et al., 2011) Meat substitute products have not been around for a long time except for soy that has been on the markets for a longer period, and the awareness of these products is lacking. (Sadler, 2004) When it comes to characteristics such as price, texture, taste, and quality, meat substitute products are not perceived as good as traditional meat. (Aiking et al., 2006)

More and more the consumer decision-making is shifting from taste and price, towards healthiness and naturality of the product. The awareness of the environment that is in danger and its recourses, which are not endless, are starting to have a massive effect on consumer behavior in the food sector. Consumers see meat substitute products as a more healthy and environmentally friendly option and those beliefs and attitudes have a positive influence that leads to purchase decisions. Consumers who are not familiar with these meat substitute products, lack the information and are seeking similarities in taste and texture than in meat. Still, often consumers are choosing to push aside the environmentally friendly factor and choose traditional meat since it is a better-known source of protein and constant pressure from society is pushing towards eating it. (Hoek et al., 2011; Kemper, 2020) Even though meat substitutes have many challenges facing them and may not suit everyone's diet, they are a better option for our environment comparing to traditional meat, and hopefully, that could be enough to change consumers' attitudes and beliefs to a more positive direction towards meat substitute products. (Turner, 2019)

### **3. RESEARCH METHODOLOGY**

This chapter provides information about the methodological part of the study. It shows how the study was conducted and which research methods were used. Also, how data was gathered and analyzed. The chapter can be divided into two main parts: Research plan and design and data collection.

#### **3.1 Research plan and design**

This study aims to find out the attitudes towards meat substitute products and the key factors that are affecting consumer purchase behavior, and a quantitative method is used. Quantitative methods emphasize objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys, or by manipulating pre-existing statistical data using computational techniques. Quantitative research focuses on gathering numerical data and generalizing it across groups of people or explaining a particular phenomenon (Babbie, 2010). The quantitative method is chosen for this study because it allows having a greater number of subjects and it allows the attitudes towards meat substitutes and key factors affecting decision-making to be much wider and provides significantly larger objectivity and it gives accurate results. An online questionnaire was chosen because it is not too complex to analyze and is familiar to most, thus it was the most suitable option as a data collection instrument, and it was designed by Google forms. The only things that were needed from the participants' side were an internet connection and smartphone or a computer on which to do it. Questions and topics were made to find answers to the research questions. The flow of the questionnaire was made in a way that participants would not have any issues following the questionnaire and to be as clear as possible to answer. The questionnaire was voluntary and anyone who got in touch with this questionnaire had an option to do it or not and all the information was handled confidentially.

The questionnaire had 29 questions and it was divided into 10 separate sections to make the questionnaire easy to follow. It contained multiple-choice questions with one or more choices,

matrix questions, demographic questions, and a likert-scales. The first section of the questionnaire had 4 questions that helped the author to find out if the participant had ever consumed meat substitute products and the level of the knowledge regarding environmental, health, and animal welfare issues that consumption and production of animal-based meat causes. After that sections covered attitude towards buying meat substitutes and perceived availability (questions 5-6), environmental awareness (questions 7-10), health-consciousness (questions 11-13), subjective norms (questions 14-16), the importance of price (questions 17-18), intention to buy and self-reported behavior (questions 19-21). In the next two sections, respondents were asked to tell what the key factors and barriers are when making a purchase decision towards meat substitutes (questions 22-23), and if those barriers would improve, would the consumer increase consumption of meat substitute products, pay more for them or replace animal-based meat in their diet (questions 24-26). The final section consisted of demographic questions, nationality, gender, and age (questions 27-29) to make sure that all the respondents were Finnish since the study is delimited to Finnish consumers.

As a method of sampling, non-probability sampling was chosen since it is easy to use, and it is cost-effective, and data can be gathered quickly. This sampling method was also chosen because only the people who have access to the internet and different social media platforms, could participate in this questionnaire.

### **3.2 Data collection**

The questionnaire was shared throughout different social media platforms and the link to the questionnaire was distributed via Facebook, Whatsapp, and Instagram to people the author knew and from there it spread to many other people. By sending the link to the questionnaire via different social media platforms, it provided a larger number of respondents than it would have through only one platform. By distributing the link on different platforms, it provided participants from different backgrounds, age groups, and social groups to participate in this questionnaire.

The data collection period was a total of 7 days from the 28th of April to the 5th of May. The total number of the respondents after the collection period was 109 but 9 of the respondents had never consumed meat substitute products, so their responses were deleted from the data and the

final sample size was 100. Data collected was precisely examined and analyzed using MS Excel and the most relevant findings chosen to be highlighted in this study.

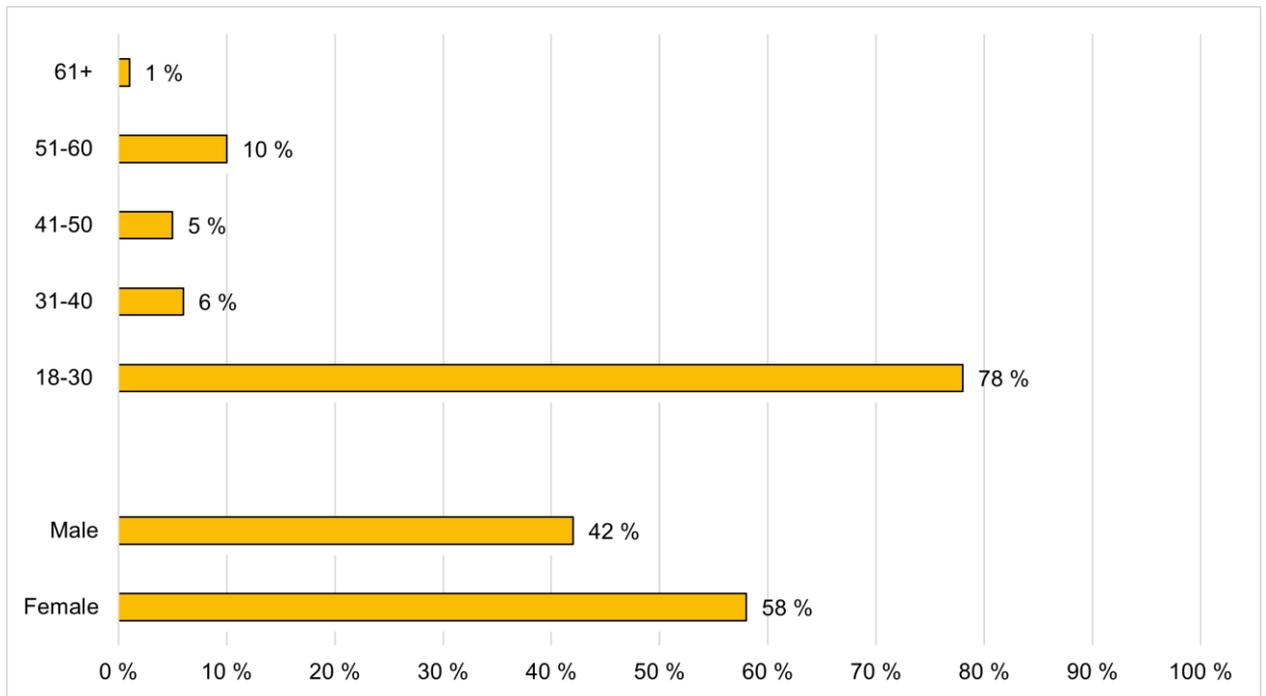


Figure 3: Demographic profile of the respondents

Source: Composed by the author

Figure 3 shows the demographic profiles of the respondents. The questionnaire was available for all ages and genders equally. The majority of the respondents (78%) were aged between 18 and 30 and category 18 years and under could be deleted from this graph since there were no respondents that belonged to that age group. 58% of the respondents were female and 42% were male.

## **4. RESULTS**

This chapter of this study provides the results from the questionnaire and the analysis. In addition, the chapter provides also a discussion part. Descriptive analysis was used as a method to analyze the results. In results analysis, results are examined and laid out and MS Excel was used to provide charts to make the results more clear.

### **4.1 Research results and analysis**

In the first question, respondents were asked if they had heard the term “meat substitute“ before and 98% of the respondents answered yes, and only 2% were not sure. The second question of the questionnaire asked the respondents if they had ever consumed meat substitute products and 92% of the respondents answered yes and 8% said that they had never consumed meat substitute products. The data from the 8% who had never consumed meat substitute products, were deleted and the rest of the results of this questionnaire are analyzed by the final number of the participants, which is 100.

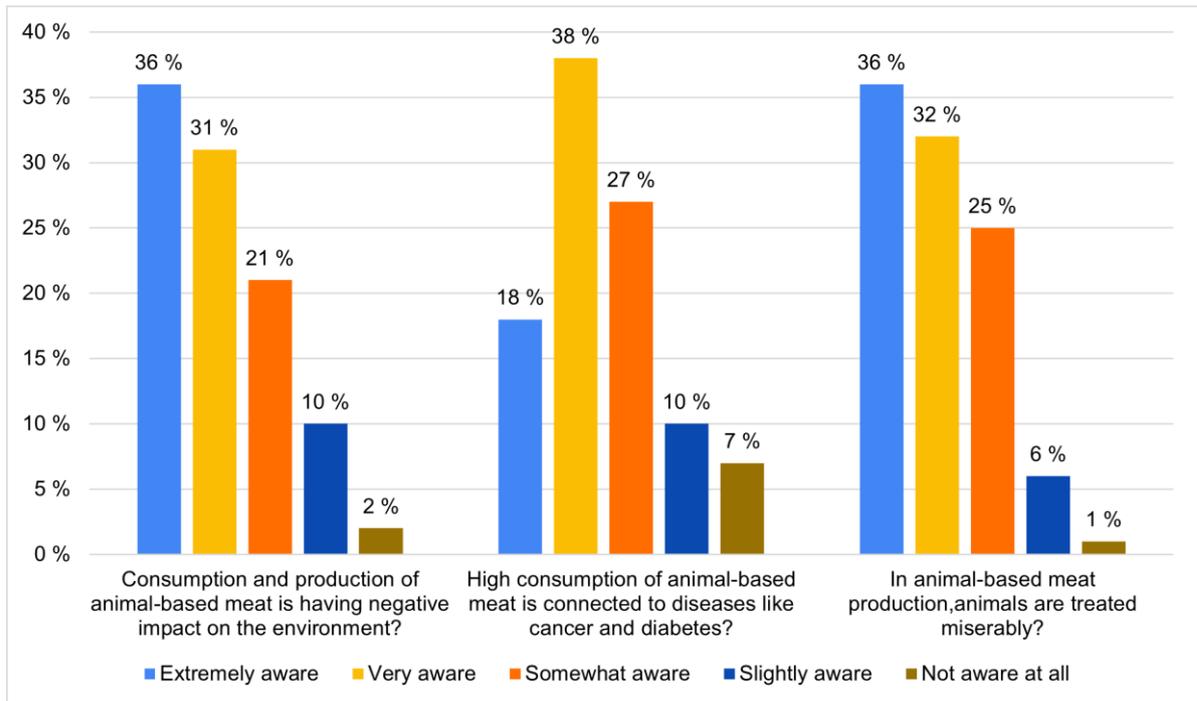


Figure 5: Awareness of negative impact of production and consumption of animal-based meat  
 Source: Composed by the author

The third question was about the awareness of the negative impacts that the production and consumption of animal-based meat have on the environment, humans health, and animal welfare. Figure 5 shows that all the respondents were more or less aware of the negative impact production and consumption has on the environment and 67% of the respondents were very or extremely aware of the impact and only 2% were not aware at all about it. Health-related issues were also known by most of the respondents and only 7% answered that they were not aware of them. When it comes to animal welfare issues, only 1% of the respondents did not know the issues related to them and the majority of the respondents (93%) were somewhat aware or more. This shows that the awareness of the negative impact that the consumption and production of animal-based meat have on the environment, health, and animal welfare is on a very high level.

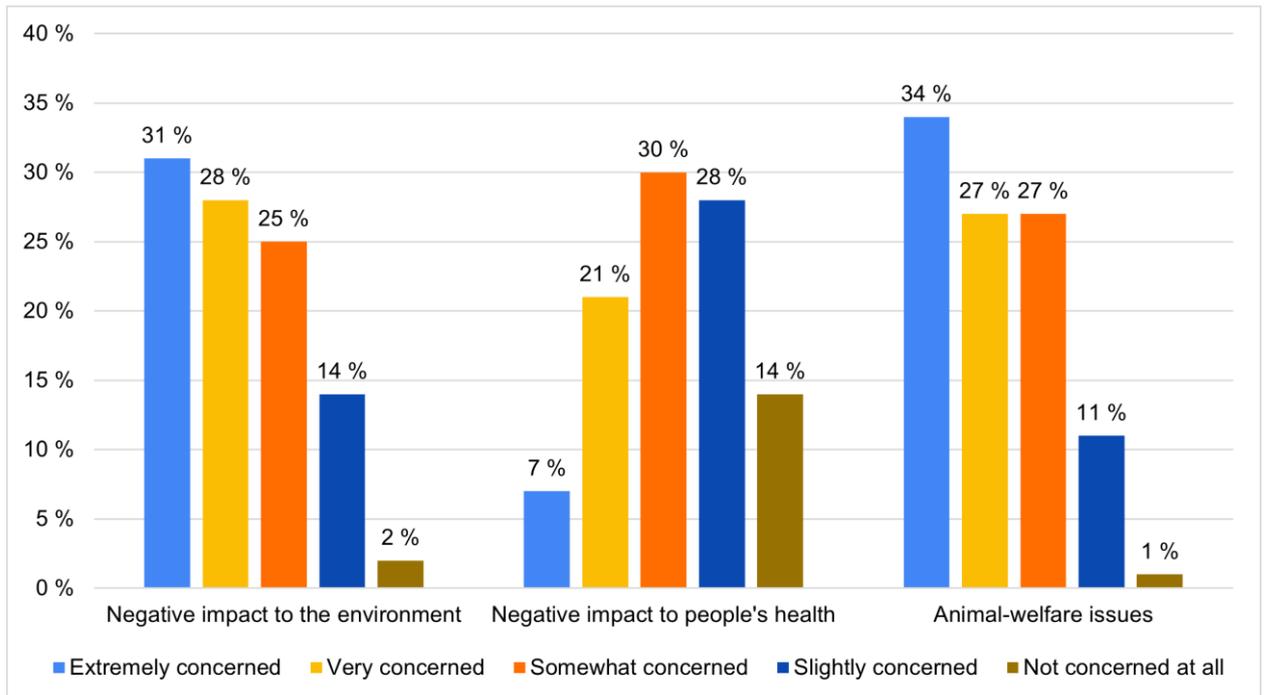


Figure 6: Level of concern of animal-based meat consumption and production

Source: Composed by the author

In the fourth question, the concerns of the respondent were asked towards different issues caused by the production and consumption of animal-based meat. As figure 6 shows, there is a lot higher concern towards the environment and animal welfare than towards people's health. 84% of the respondents were somewhat concerned or more about the environment and 88% towards animal welfare issues. Only 58% of the respondents were somewhat concerned or more about people's health and 14% were not concerned at all and it shows that animal-based meat is not seen as very negative to humans compared to concerns about the environment and animal welfare.

The fifth question was about attitudes towards buying meat substitute products. The respondents were asked about is it reasonable to buy meat substitute products and only 1% strongly disagreed. 8% of the respondents answered that they rather disagree, 21% were neutral, 29% answered that they rather agree and 41% of the respondents agreed strongly. Perceived availability was asked in the sixth question and is it sufficient enough. The majority of the respondents answered that they strongly agree (30%) or rather agree (42%). Respondents that were neutral about it was a total of 21%, for 9% of the respondents the availability was not sufficient enough as 8% answered that they rather agree and only 1% agreed strongly.

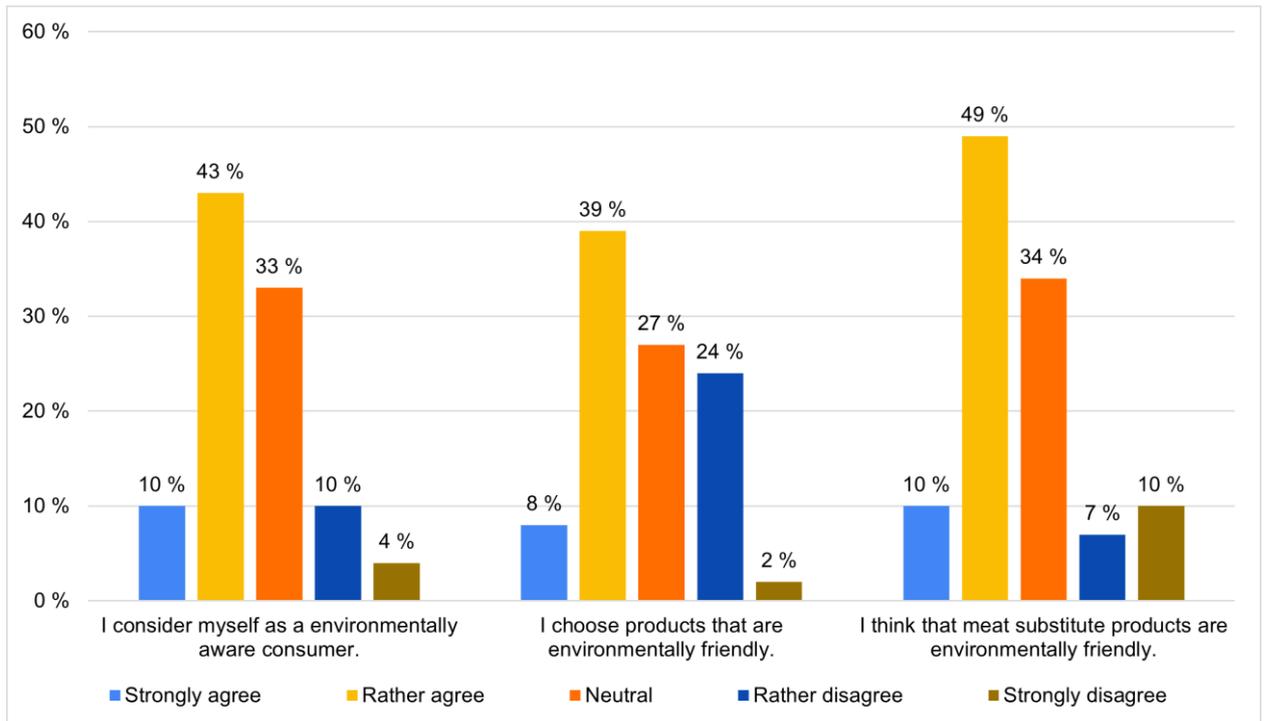


Figure 7: Environmental awareness

Source: Composed by the author

The seventh, eighth, and ninth questions were about whether respondents consider themselves environmentally aware or not. As figure 7 shows the majority of the respondents considered themselves as environmentally aware by answering strongly or rather agree (53%). The total amount of the respondents that considered themselves less environmentally aware was 14% and the rest were neutral. When asked if respondents choose environmentally friendly products, only 2% strongly disagreed, 8% strongly agreed and the rest rather agreed, disagreed, or were neutral about it. In the ninth question about the environmental friendliness of meat substitute products, the majority either strongly agreed or rather agreed (59%). Respondents who disagreed were a total of 17%. The tenth question was about if respondents choose sustainable products.

Respondents who answered rather agree (41%) and neutral (38%), formed a huge majority total of 79%. 3% of the respondents agreed strongly, 17% answered rather disagree and 1% disagreed strongly.

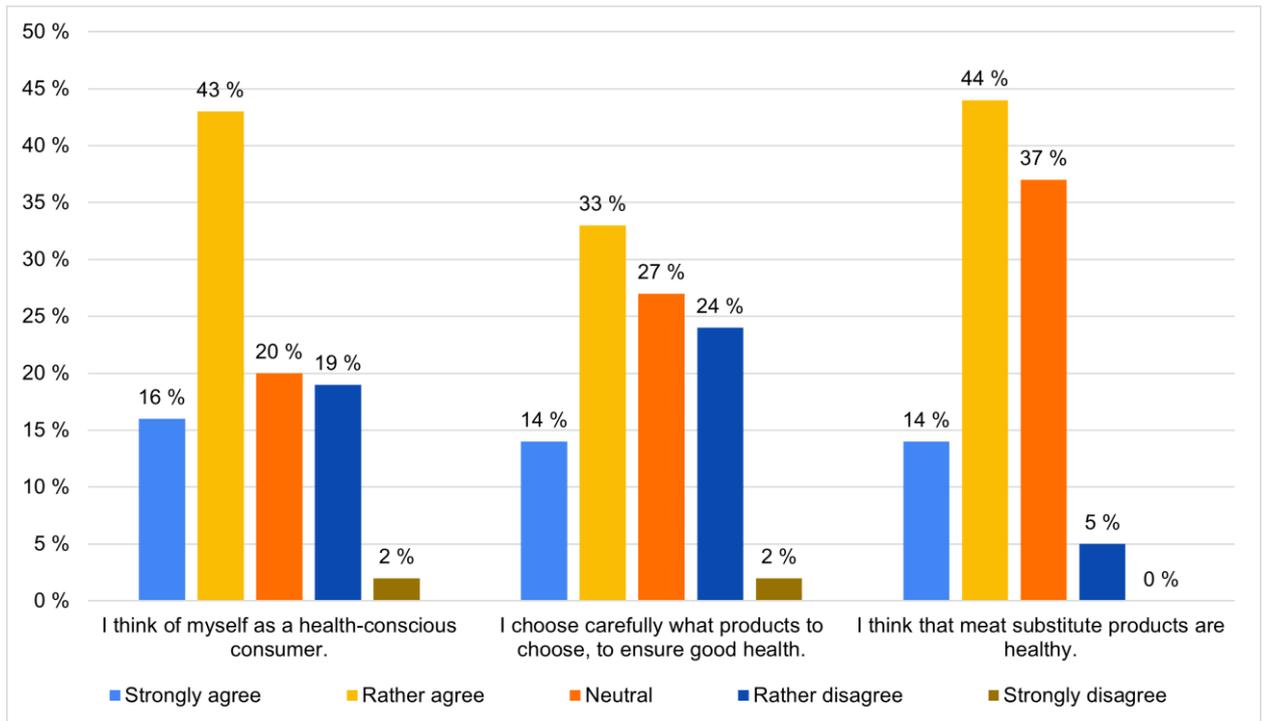


Figure 8: Health-consciousness

Source: Composed by the author

The eleventh, twelfth and thirteenth question was about health-consciousness and as the figure 8 shows, for the eleventh question, if respondent sees themselves as a health-conscious consumer, 59% answered that they strongly or rather agree. 21% of the respondents answered that they strongly or rather disagree with the question. When it comes to the twelfth question where respondents were asked if they choose carefully their product what to purchase to ensure their good health, 47% agreed on some level. 27% were neutral and respondents who answered rather disagree (24%) or strongly disagree (2%), formed the rest of the responses. The thirteenth question about if meat substitute products are considered to be healthy, none of the respondents answered strongly disagree and only 5% answered rather disagree. This indicates that meat substitute products are mostly seen as a healthy option as a source of protein.

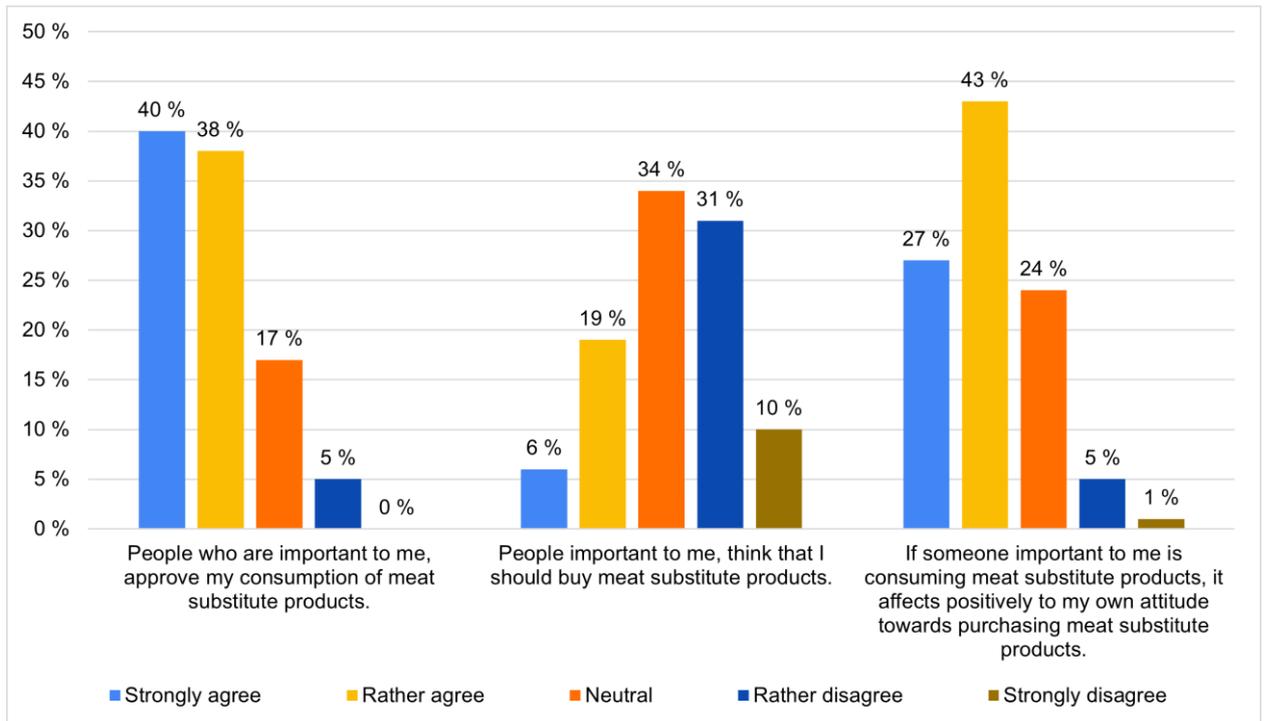


Figure 9: Subjective norms

Source: Composed by the author

Questions from 14 to 16 were about subjective norms and the impact they have. As figure 9 shows, people that are important to the respondent are approving the consumption of meat substitute products as 78% of the respondents have answered that they strongly or rather agree. None of the respondents feel that people important to them would not approve strongly their consumption of meat substitute products. In the fifteenth question, 41% of the respondents answered that rather or strongly disagree that people important to them think that they should buy meat substitute products. Only 6% strongly agreed that their close ones think that they should purchase meat substitute products. Question sixteen asked if someone important to the respondent is consuming meat substitute products, it has a positive impact on their own attitude towards purchasing meat substitute products and as the data shows, it has a huge impact on it. Only 1% strongly disagreed and 70% agreed that it has a positive impact.

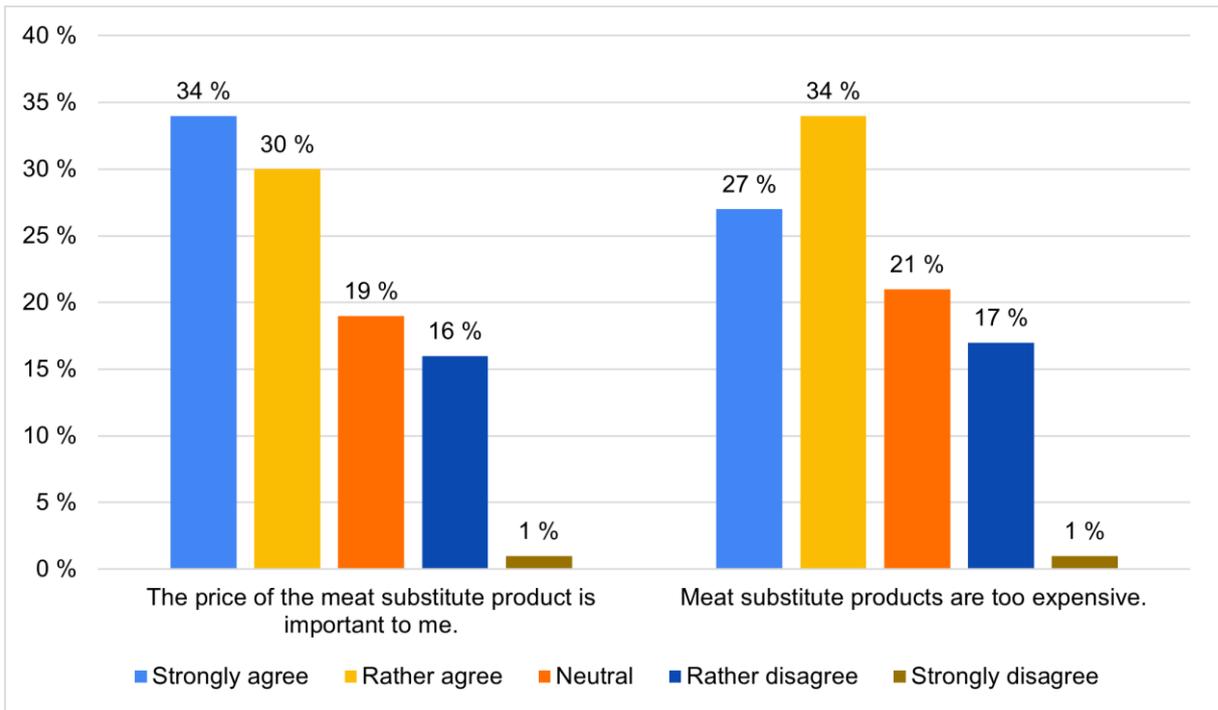


Figure 10: Importance of price and peception about price of a meat substitute product

Source: Composed by the author

The seventeenth question investigated the importance of the price of a meat substitute product. Figure 10 indicates that the majority of the respondents think that price is important to them (64%). Only 1% think that price of a meat substitute product is not relevant. Question eighteen shows that 61% of the respondents see meat substitute products as too expensive and 21% are neutral. Again only one respondent thinks that meat substitute products are not too expensive and 17% rather disagreed.

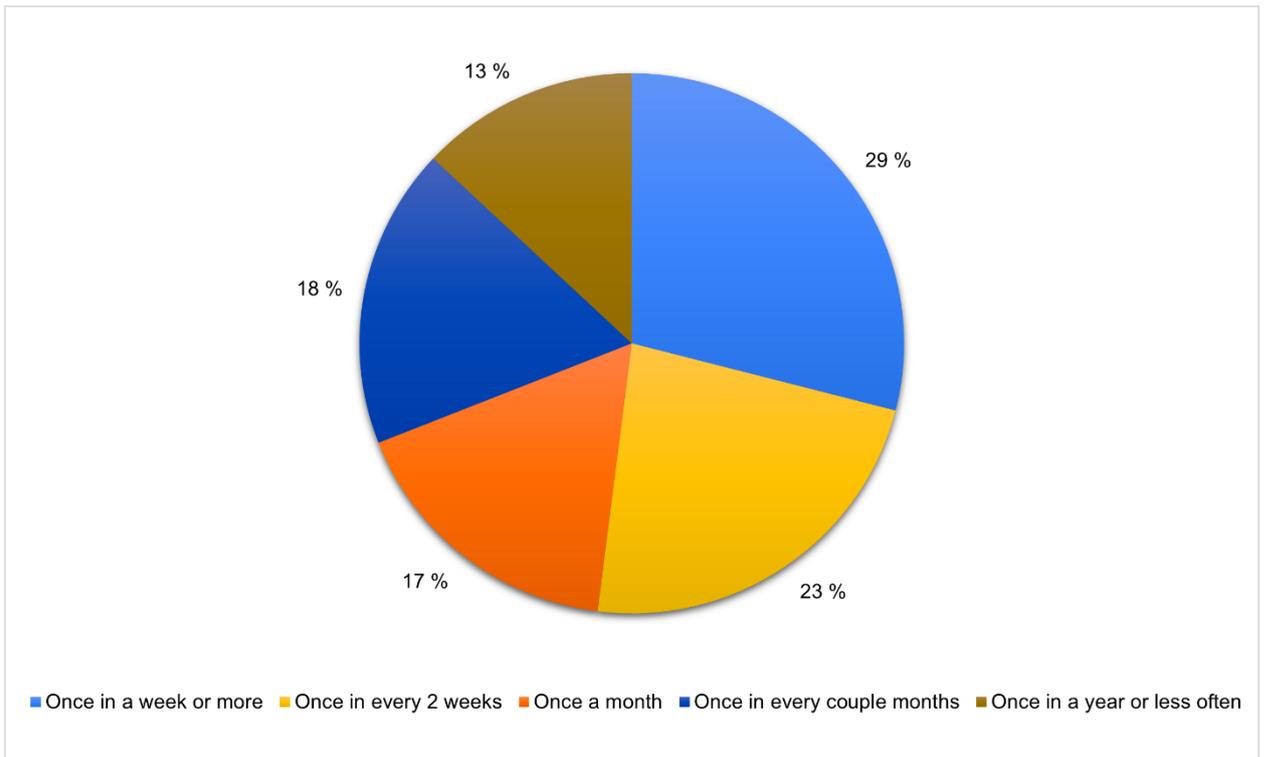


Figure 11: Self-reported behaviour

Source: Composed by the author

The nineteenth question was about consumption habits and how often they purchase meat substitute products. Figure 11 shows that 29% of the respondents are purchasing meat substitute products once a week or more and 23% once every 2 weeks. Most of the respondents are purchasing meat substitute products at least once every couple of months since only 13% of the respondents answered that they purchase them once a year or less often.

Question twenty asked if the respondent had the intention to buy meat substitute products in the near future. Respondents that answered strongly agree covered 42% of the responses. Rather agree (22%), neutral (18%), rather disagree (14%), and strongly disagree (4%) were not that popular answers. The twenty-first question asked if the attitude the respondent has towards meat substitute product affect the intention to purchase them. 33% of the respondents answered that they strongly agree, 42% that they rather agree, 18% were neutral, 5% rather disagreed and 2% disagreed strongly. This indicates that whatever the attitude is towards meat substitute products, it has a major impact on the intention to purchase those products.

Questions twenty-two and twenty-three investigated the key factors and barriers that affect respondents when making a purchase decision whether to buy or not a meat substitute product.

There was an option to choose a maximum of three factors. When it comes to the key factors that motivate to buy, most of the respondents answered that taste is a major factor (70%). Taste and texture got both 34% of votes, 31% answered environmentally friendliness and 29% said that their health is an important factor. Animal welfare 25% and familiarity of the product 23% can not be ignored either. The biggest barriers that affect the purchase decision to purchase meat substitute products were price 64%, taste 55% texture 32%, the unfamiliarity of the product 32%, and limited availability 26%. It is clear that the price of the meat substitutes is seen too high and there are issues with taste, texture, and familiarity of the products. Although taste is a motivator and a barrier, it can be explained by the variety of the products and from previous experience with a certain product.

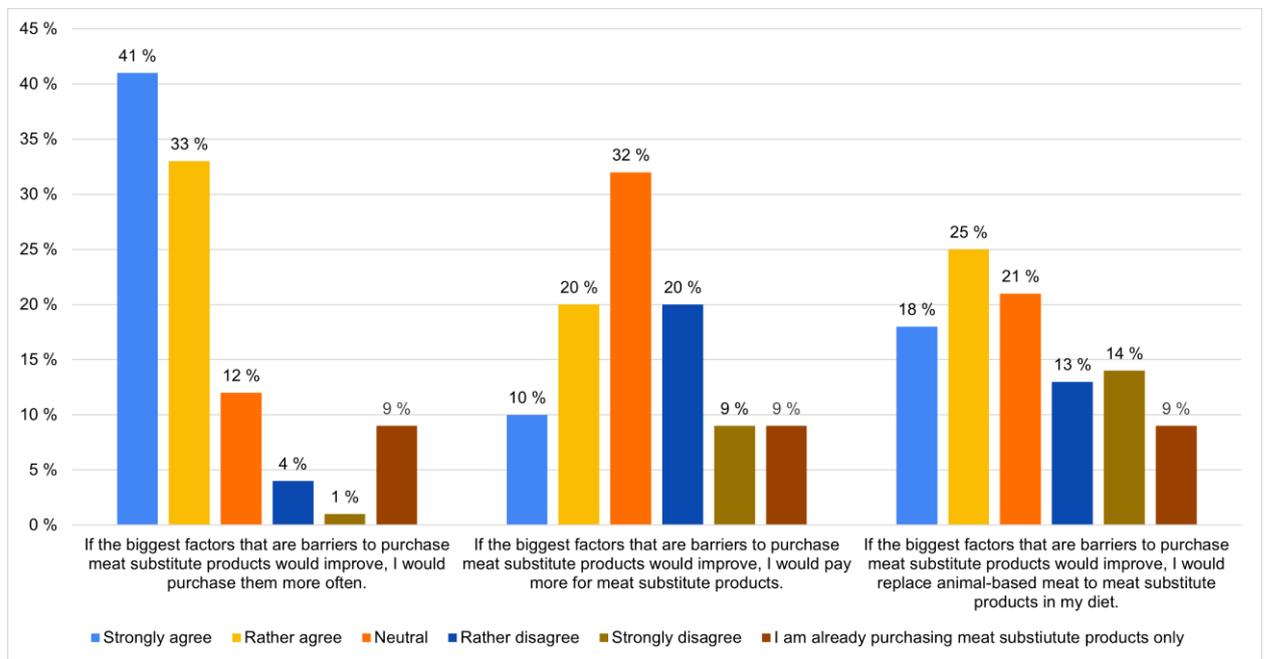


Figure 12: Willingness to change behaviour

Source: Composed by the author

The author gave a possibility in questions twenty-four to twenty-six for those who are already consuming only meat substitute products to answer properly and 9% of the respondents said that they are already purchasing meat substitute products either way. The twenty-fourth question investigated if the respondent is willing to increase the consumption of meat substitute products if the barriers that they stated would improve. The majority of the respondents agreed that they would (74%) and only 5% disagreed. When it comes to whether the respondent would be willing to pay more for a meat substitute product, there is not an as high level of agreeableness. Only 30% of the respondent agree on some level and 29% disagree and 32% are neutral. The twenty-sixth question

asked the respondents if they would replace animal-based meat with meat substitute products if the barriers would improve and 43% of the respondents answered either that they strongly or rather agree. 27% of the respondents said that they rather or strongly disagree and 21% were neutral. These results show clearly that there is a willingness to change consumption habits if the products would improve.

## **4.2 Discussion**

The majority of the respondents are heard about the term meat substitute before and there is a good level of knowledge about the impact that consumption and production of animal-based meat have on the environment, health, and animal welfare. According to the data, the Majority of the respondents were concerned about our environment and 31% were extremely concerned, 28% very concerned and only 2% answered that they were not concerned at all. Also, concern about animal welfare was quite high. 34% answered that they are extremely concerned, 27% very concerned and only 1% said that they were not concerned at all. When it comes to the concerns of health, the level of concern was not that high. Only 7% were extremely concerned and an overwhelming 14% were not concerned at all. The fact that respondents are more concerned about animal welfare and the environment can be due to the fact that animal-based meat has been our primary source of protein for ages, and it is the learned “normal“ so people do not see it as a problem since it has been consumed for such a long time. There lies an issue because if consumption habits want to be changed, there is a need to change consumers' attitudes and beliefs.

Attitude towards buying meat substitute products was very high. 41% agreed strongly and 29% answered that they rather agree. Although there were 21% who answered neutral, there was a very low amount of rather disagree (8%) and strongly disagree (1%) answers. It indicates that the attitude is overall very good towards purchasing meat substitute products and also perceived availability of meat substitute products was high. According to Ajzen (1991), the better the attitude towards the object is, there is higher the chance that an individual is performing a certain behavior. These results show that there is a possibility, as meat substitute products become more popular and similar to animal-based meat, that the consumption of meat substitute products could increase very rapidly.

When it comes to environmental consciousness according to Botztepe (2012), it is a huge factor that affects consumer purchase behavior. In this study, 53% of the respondents think that they are at some level environmentally friendly consumers and only 14% disagreed. Whether to choose environmentally friendly products or not, 47% said that they are choosing products that are environmentally friendly and 25% disagreed. When choosing sustainable products, 44% said that they do choose sustainable products and 18% disagreed. These results indicate that environmentally friendly and sustainable products are important to most of the respondents and environmental consciousness is a major factor affecting purchase behavior. Also, meat substitute products are seen as environmentally friendly by 59% of the respondents and only 7% thought that meat substitute products are not environmentally friendly.

Most of the respondents considered themselves as health-conscious consumers (59%) and 47% answered that they do choose products that are environmentally friendly. As the level of health-consciousness is increasing as the population increases, meat substitute products are seen as a very healthy option since no one of the respondents strongly disagreed when asked if they thought that meat substitute products are healthy and only 5% rather disagreed. Consumers are aware of the negative effects what meat production causes on their health and feel that they need to decrease the consumption of meat.

Subjective norms have a huge impact on attitudes and the data showed that if someone important to the respondent is consuming meat substitute products, it is affecting positively to their attitude towards purchasing those products. 70% of the respondents agreed that it has a positive impact on their attitude and only 6% disagreed. Kotler and Armstrong (2011) said that family has the highest impact on consumers' behavior and as the results show, consumers are influenced by people close to them.

Aiking et al., (2006) said that the price is one of the major factors that is influencing consumer decision-making. It can be said that most of the respondents feel the same way, majority of the respondents answered that the price of meat substitute products is important to them (64%) and 61% said that meat substitute products are too expensive. The fact that level of income may affect this since 18% of the respondents answered that they do not agree that meat substitute products are too expensive but the level of income was not investigated in this study. Also, the fact that so many of the respondents think that meat substitutes are too expensive indicates clearly that no matter what the level of income is, there is a need to get the price level of these products lower so everyone can purchase them and consume them in their everyday diet.

The majority of the respondents purchase meat substitute products at least once every two weeks (52%) and only 13% answered that they consume meat substitute products once a year or less often. A difference between females and males was seen when it comes to how often respondents purchase meat substitute products. Females purchased more regularly meat substitute products than males and Rothgerber (2013) said in his study that females and males justify animal-based products differently and they use different mindsets and due to all these different attitudes and beliefs, females are connected more likely to meat substitute products and environmentally friendly behavior than males. The majority of the respondents said that they intend to buy meat substitute products in the near future (64%), 18% disagreed and 18% were neutral. Also, a connection between attitude towards buying and intention to buy was found because 75% answered that attitude towards buying does affect the intention to buy and only 7% disagreed.

Key factors that affect the decision to purchase meat substitute products were taste (70%), texture (34%), price (34%), environmental friendliness (31%), health (29%), ethicality (25%), and familiarity of the product (23%). The biggest barriers were price (64%), taste (55%), texture, and unfamiliarity of the product both got 32% votes and limited availability 26%. The result fights a bit against each other since both key factors and barriers include taste and texture. This can be due to the fact that respondents think that some of the meat substitute products are tasteful and have a good texture and some do not. But major factors that are needed to take into account are environmental friendliness, healthiness, and ethicality since there is increasing knowledge about the issues that production and consumption of animal-based meat create, and therefore meat substitute products are seen as a better option. The interest in having a healthy diet and avoid the causes that meat has to the health has an influence when making a purchase decision (Castellari et al., 2018) The price is seen as the biggest barrier and also taste which does not come as a surprise as Hoek et al., (2011) said that the price is too high and taste and texture differs too much, but there is potential in the future for products that are similar to meat. Hoek et al., (2011) also stated that a meat-like product could help with overcoming the unfamiliarity of the product. As the results from this study show, there is a lack of knowledge of these products as 32% of the respondents said that unfamiliarity with the product is a barrier.

When investigating the willingness to change consumption behavior, 9% of the respondents stated that they are already purchasing meat substitute products only and they are out from this part of the discussion. If the biggest barriers which respondents said when making purchase decision towards meat substitute products would improve, major of the respondents are willing

to increase their consumption of meat substitute products (74%), and only 5% of the respondents disagreed so there is an opportunity for markets to increase if the products improve. Respondents were not so willing to pay more even if the barriers would disappear since only 30% of the respondents answered that they would and 29% disagreed. Surprisingly when asked that would respondents be ready to replace animal-based meat in their diet with meat substitute products, 43% answered that they agree and the minority 27% disagreed. This shows that consumers are ready to make changes in their consumption behavior which is a good thing considering that already the production of animal-based meat is using our natural resources over the capacity that the environment can.

The biggest issue is to make these products affordable to everyone, and more like animal-based meat, and to provide more information about meat substitute products so everyone would know them. Also, the fact that animal-based meat is the “normal“ protein source and meat substitute products are relatively new, there is a need to find a way to change that attitude to the “new normal“ with meat substitute products. Overall the majority of respondents have a positive attitude towards meat substitute products and the awareness of the issues that animal-based meat is connected to, is known. This shows clearly that the attitudes of respondents are changing towards more environmentally friendly and healthy products and accepts that meat substitute products could be part of their diet in the future even more.

During the data collection and after it, the author received a lot of feedback that said that this questionnaire got the respondent to think more about the environmental friendliness and their health and gave them the interest to try more often meat substitute products. This kind of feedback is always heartwarming to know that with this kind of study, interest in meat substitute products is increasing and that it can influence someone, even if it just a couple of people. Also, many comments were given about the importance of this topic and overall all the feedback was very positive and nice to receive.

## CONCLUSION

This study aimed to find out the attitudes towards meat substitute products and the key factors affecting the decision-making. The meat substitute markets have increased rapidly during recent years and as the population grows, the knowledge of the environmental, health, and animal-welfare issues the consumption and production of animal-based meat are creating. Meat substitute products have not still received a broader acceptance amongst consumers and this study wanted to investigate attitudes and different factors that affect the purchase behavior.

The study aimed to answer the following research questions, 1) How consumers attitudes towards meat substitute products are affecting purchase decisions, 2) Which are the key factors that influence consumers purchasing decisions regarding to meat substitute products and 3) Which factors would increase the consumption of meat substitute products? The main findings of this study were that consumers mainly have a positive attitude towards meat substitute products and that the attitude towards meat substitute products is affecting the intention to purchase them. Key factors that are affecting the decision-making when purchasing meat substitute products were taste, texture, and price, but environmental friendliness, healthiness, and ethicality of meat substitute products can not be neglected when investigating the key factors. The biggest barriers when making purchase decisions were, price, taste texture, and unfamiliarity of the product and if those factors would improve, consumers are willing to change their consumption habits towards meat substitute products.

This study showed that meat substitute products are part of consumers' lives at some level already and meat substitute products are seen as a possible source of protein someday. Subjective norms have a huge impact on consumers' attitudes. The majority of the respondents said that if someone important to them is consuming meat substitute products, it affects positively their attitude towards purchasing them. The price factor is affecting negatively mainly since most of the respondents see meat substitute products as too expensive and that is a factor that needs to be focused on to get the price level decreased in a way that the final purchase decision would not be dependent on the price.

Some limitations occur in the study. Non-probability sampling does not include the whole population but only those who have access to the internet and have a smartphone, tablet, or computer, could take part in this questionnaire. With an online questionnaire is important to remember that responses are not truthful, and the questionnaire is done with a rush and it might not provide truthful responses. Also, most of the respondents were aged between 18 and 30 and the findings of this study can not necessarily be transferred to different age groups.

A recommendation for future studies would be to study the same topic but to use the qualitative method, form focus groups, and compare the different consumer groups to find out unique perceptions of consumers' attitudes towards meat substitute products. Subjective norms should be also studied further since this study showed that they do affect consumers' attitudes.

The study clearly shows that the majority of the respondents consider meat substitute products as too expensive which is affecting negatively purchase decisions. Companies could try to focus on how to get the price level lower if it would be possible. Also, there are different opinions about the taste and texture, but some products are more tasteful and have a better texture than others, so it could be one thing to focus on. Lastly, more information needs to be provided about meat substitute products because as this shows, many respondents feel like it is a barrier when making a purchase decision that the product is unfamiliar to them. If these factors would improve, the consumption of meat substitute products would increase without a doubt.

## LIST OF REFERENCES

- Aiking, H. (2011). Future protein supply. *Trends in Food Science & Technology*, 22(2–3), 112–120. <https://doi.org/10.1016/j.tifs.2010.04.005>
- Aiking, H., Boer, J. D., & Vereijken, J. (2010). *Sustainable Protein Production and Consumption: Pigs or Peas? (Environment & Policy, 45)* (Softcover reprint of hardcover 1st ed. 2006 ed.). Springer.
- Ajzen, I. (1991) The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211
- Ajzen, I. (2005). *Attitudes, Personality and Behavior*. (2nd ed) UK:McGraw-Hill Education.
- Al Qauhiz NM. Obesity among Saudi Female University Students: Dietary Habits and Health Behaviors. *J Egypt Public Health Assoc.* 2010;85(1-2):45-59. PMID: 21073847.
- Armitage, C. J., & Christian, J. (2003). From attitudes to behaviour: Basic and applied research on the theory of planned behaviour. *Current Psychology*, 22(3), 187–195. <https://doi.org/10.1007/s12144-003-1015-5>
- Aschemann-Witzel, J., Gantriis, R. F., Fraga, P., & Perez-Cueto, F. J. A. (2020). Plant-based food and protein trend from a business perspective: markets, consumers, and the challenges and opportunities in the future. *Critical Reviews in Food Science and Nutrition*, 1–10. <https://doi.org/10.1080/10408398.2020.1793730>

- Asgar, M., Fazilah, A., Huda, N., Bhat, R., & Karim, A. (2010). Nonmeat Protein Alternatives as Meat Extenders and Meat Analogs. *Comprehensive Reviews in Food Science and Food Safety*, 9(5), 513–529. <https://doi.org/10.1111/j.1541-4337.2010.00124.x>
- Babbie, E. R. (2020). *The Practice of Social Research (MindTap Course List)* (15th ed.). Cengage Learning.
- Baker, M. J. (2003). *The Marketing Book*. Butterworth-Heinemann.
- Bonny, S. P. F., Gardner, G. E., Pethick, D. W., & Hocquette, J. F. (2015). What is artificial meat and what does it mean for the future of the meat industry? *Journal of Integrative Agriculture*, 14(2), 255–263. [https://doi.org/10.1016/s2095-3119\(14\)60888-1](https://doi.org/10.1016/s2095-3119(14)60888-1)
- Boztepe, Aysel. (2016). Green Marketing and Its Impact on Consumer Buying Behavior. *European Journal of Economic and Political Studies*. 5. 5-21.
- Bryant C, Szejda K, Parekh N, Deshpande V, Tse B. A survey of consumer perceptions of plant-based and clean meat in the USA, India, and China. *Front Sustain Food Syst*. 2019;3:11. doi: 10.3389/fsufs.2019.00011.
- By Philip Kotler, Gary Armstrong: *Principles of Marketing (14th Edition) Fourteenth (14th Edition)*. (2011). 14th Edition.
- Carrigan, M., & Attalla, A. (2001). The myth of the ethical consumer – do ethics matter in purchase behaviour? *Journal of Consumer Marketing*, 18(7), 560–578. <https://doi.org/10.1108/07363760110410263>
- Copelton, D. A. (2006). A Review of: “Vegetarianism, Movement or Moment?” *Food and Foodways*, 14(1), 55–58. <https://doi.org/10.1080/07409710500334558>
- De Smet, S., & Vossen, E. (2016). Meat: The balance between nutrition and health. A review. *Meat Science*, 120, 145–156. <https://doi.org/10.1016/j.meatsci.2016.04.008>

- Eberhart (née Moser), A. K., & Naderer, G. (2017). Quantitative and qualitative insights into consumers' sustainable purchasing behaviour: a segmentation approach based on motives and heuristic cues. *Journal of Marketing Management*, 33(13–14), 1149–1169.  
<https://doi.org/10.1080/0267257x.2017.1371204>
- Elmadfa, I., & Meyer, A. L. (2017). Animal Proteins as Important Contributors to a Healthy Human Diet. *Annual Review of Animal Biosciences*, 5(1), 111–131.  
<https://doi.org/10.1146/annurev-animal-022516-022943>
- Fernandes, S., & Panda, R., 2019. Influence of social reference groups on consumer buying behavior: A review. *Journal of management research*, 19(2), 131-142.
- Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley.
- Food and Agriculture Organization of the United Nations. (2006). *Livestock's Long Shadow: Environmental Issues and Options*. FAO.
- Graça, J. (2016). Towards an integrated approach to food behaviour: Meat consumption and substitution, from context to consumers. *Psychology, Community & Health*, 5(2), 152–169. <https://doi.org/10.5964/pch.v5i2.169>
- Gajjar, N. B. (2013). Factors affecting consumer behaviour. *International Journal of Research In*, 1(2)
- Henchion, M., Hayes, M., Mullen, A., Fenelon, M., & Tiwari, B. (2017). Future Protein Supply and Demand: Strategies and Factors Influencing a Sustainable Equilibrium. *Foods*, 6(7), 53. <https://doi.org/10.3390/foods6070053>

- Hoek, A. C., Luning, P. A., Weijzen, P., Engels, W., Kok, F. J., & de Graaf, C. (2011). Replacement of meat by meat substitutes. A survey on person- and product-related factors in consumer acceptance. *Appetite*, *56*(3), 662–673. <https://doi.org/10.1016/j.appet.2011.02.001>
- Icek Ajzen & Martin Fishbein (2000) Attitudes and the Attitude-Behavior Relation: Reasoned and Automatic Processes, *European Review of Social Psychology*, *11*:1, 1-33, DOI: 10.1080/14792779943000116
- Jaiswal, N. (2012). Green Products : Availability, Awareness and Preference of use by the Families. *Indian Journal of Environmental Education*, *12*
- Joshi, V., & Kumar, S. (2015). Meat Analogues: Plant based alternatives to meat products- A review. *International Journal of Food and Fermentation Technology*, *5*(2), 107. <https://doi.org/10.5958/2277-9396.2016.00001.5>
- Kemper, J. A. (2020). Motivations, barriers, and strategies for meat reduction at different family lifecycle stages. *Appetite*, *150*, 104644. <https://doi.org/10.1016/j.appet.2020.104644>
- Kollmuss, A., & Agyeman, J. (2002). Mind the Gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, *8*(3), 239–260. <https://doi.org/10.1080/13504620220145401>
- Latvala, T., Niva, M., Mäkelä, J., Pouta, E., Heikkilä, J., Kotro, J., & Forsman-Hugg, S. (2012). Diversifying meat consumption patterns: Consumers' self-reported past behaviour and intentions for change. *Meat Science*, *92*(1), 71–77. <https://doi.org/10.1016/j.meatsci.2012.04.014>
- Lee, H. J., Yong, H. I., Kim, M., Choi, Y. S., & Jo, C. (2020). Status of meat alternatives and their potential role in the future meat market — A review. *Asian-Australasian Journal of Animal Sciences*, *33*(10), 1533–1543. <https://doi.org/10.5713/ajas.20.0419>
- Leonidou, C. N., & Leonidou, L. C. (2011). Research into environmental marketing/management: a bibliographic analysis. *European Journal of Marketing*, *45*(1/2), 68–103. <https://doi.org/10.1108/03090561111095603>

- Lock K, Smith RD, Dangour AD, Keogh-Brown M, Pigatto G, Hawkes C, Fisberg RM, Chalabi Z. Health, agricultural, and economic effects of adoption of healthy diet recommendations. *Lancet*. 2010 Nov 13;376(9753):1699-709. doi: 10.1016/S0140-6736(10)61352-9. PMID: 21074259.
- Mataracı, P., & Kurtuluş, S. (2020). Sustainable marketing: The effects of environmental consciousness, lifestyle and involvement degree on environmentally friendly purchasing behavior. *Journal of Global Scholars of Marketing Science*, 30(3), 304–318. <https://doi.org/10.1080/21639159.2020.1766988>
- Meyer, M. (2021, March 23). *This Is How Many Vegans Are In The World Right Now (2021 Update)*. WTVOX. <https://wtvox.com/lifestyle/2019-the-world-of-vegan-but-how-many-vegans-are-in-the-world/>
- P Panwar D., Anand., Ali F., Singal K., Consumer Decision Making Process Models and their Applications to Market Strategy (2019). *International Management Review*, 15(1)
- Papaoikonomou, E., Ryan, G., & Valverde, M. (2011). Mapping Ethical Consumer Behavior: Integrating the Empirical Research and Identifying Future Directions. *Ethics & Behavior*, 21(3), 197–221. <https://doi.org/10.1080/10508422.2011.570165>
- Prezenski, S., Brechmann, A., Wolff, S., & Russwinkel, N. (2017). A Cognitive Modeling Approach to Strategy Formation in Dynamic Decision Making. *Frontiers in Psychology*, 8, 1–16. <https://doi.org/10.3389/fpsyg.2017.01335>
- Richter, F. (2019, June 17). *Alternative Meat Market Poised for Growth*. Statista Infographics. <https://www.statista.com/chart/18394/meat-substitute-sales-in-selected-countries/>

- Rothgerber, H. (2013). Real men don't eat (vegetable) quiche: Masculinity and the justification of meat consumption. *Psychology of Men & Masculinity*, 14(4), 363–375.  
<https://doi.org/10.1037/a0030379>
- Sadler, M. J. (2004). Meat alternatives — market developments and health benefits. *Trends in Food Science & Technology*, 15(5), 250–260. <https://doi.org/10.1016/j.tifs.2003.09.003>
- Schuitema, G., & de Groot, J. I. M. (2014). Green consumerism: The influence of product attributes and values on purchasing intentions. *Journal of Consumer Behaviour*, 14(1), 57–69. <https://doi.org/10.1002/cb.1501>
- Shurtleff, W. and Aoyagi, A. (2007) History of Soybean Crushing: Soy Oil and Soybean Meal— Part 1. A Chapter from the Unpublished Manuscript, History of Soybeans and Soyfoods, 1100 B.C. to the 1980s.
- Solomon, M., Bamossy, G., Askegaard, S., & Hogg, M. K. (2010). *Consumer Behaviour: A European Perspective* (4th ed.). Pearson P T R.
- Solomon, M. R. (2006). *Consumer Behaviour*. Prentice Hall.
- Tuorila, H., & Hartmann, C. (2020a). Consumer responses to novel and unfamiliar foods. *Current Opinion in Food Science*, 33, 1–8. <https://doi.org/10.1016/j.cofs.2019.09.004>
- Turner, L. (2020, October 30). *Are Veggie Burgers Good for You?* Better Nutrition.  
<https://www.betternutrition.com/diet-and-nutrition/are-veggie-burgers-good-for-you/>
- Yang, J., He, X. and Lee, H. (2007) 'Social reference group influence on mobile phone purchasing behaviour: a cross-nation comparative study', *Int. J. Mobile Communications*, Vol. 5, No. 3, pp.319–338.
- V. (2018, February 12). *Veganism and vegan products in Finland*. Vegaanituotteet.  
<http://www.vegaanituotteet.net/inenglish/veganism-in-finland/>

Wansink, B., Sonka, S., Goldsmith, P., Chiriboga, J., & Eren, N. (2005). Increasing the Acceptance of Soy-Based Foods. *Journal of International Food & Agribusiness Marketing*, 17(1), 35–55. [https://doi.org/10.1300/j047v17n01\\_03](https://doi.org/10.1300/j047v17n01_03)

Wild F, Czerny M, Janssen AM, Kole APW, Zunabovic M, Domig KJ. The evolution of a plant-based alternative to meat. From niche markets to widely accepted meat alternatives. *Agro Food Ind Hi-Tech*. 2014;25:45–9

## APPENDICES

### Appendix 1. The questionnaire

# Consumers attitudes towards meat substitute products and key factors influencing the decision-making of Finnish consumers

Dear Respondent,

My name is Niko Hottinen and I am student of Tallinn University of Technology. I am writing my graduation thesis on topic called: "Consumers attitudes towards meat substitute products and key factors influencing the decision-making of Finnish consumers", and I invite you to take part to this questionnaire to help my study! The questionnaire will take approximately 10 minutes and all the answers will stay confidential and anonymous.

Please read all the questions carefully and also the answers to them. Choose an answer that in your opinion suits the best to the question and mark it.

Before starting the questionnaire, please find the definition of meat substitute below and read it through.

Meat substitute is a non-animal protein food products, derived from soya beans, wheat gluten, yeast or other sources, and usually flavoured and textured to resemble natural muscle protein.

I want to thank you in advance for your time and participation to this study!

Seuraava

1st

Have you heard the term meat substitute before? \*

- Yes
- No
- I am not sure

Have you ever consumed meat substitute products? \*

- Yes
- No

How aware of you are that: \*

	Extremely aware	Very aware	Somewhat aware	Slightly aware	Not aware at all
Consumption and production of animal-based meat is having negative impact on the environment?	<input type="radio"/>				
High consumption of animal-based meat is connected to diseases like cancer and diabetes?	<input type="radio"/>				
In animal-based meat production, animals are treated miserably	<input type="radio"/>				

What is your level of concern that production and consumption of animal-based meat creates? \*

	Extremely concerned	Very concerned	Somewhat concerned	Slightly concerned	Not concerned at all
Negative impact to the environment	<input type="radio"/>				
Negative impact to people's health	<input type="radio"/>				
Animal-welfare issues	<input type="radio"/>				

2nd

I think that buying meat substitute products is reasonable. \*

- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

I think that meat substitute products are sufficiently available. \*

- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

3rd

I consider myself as a environmentally aware consumer. \*

- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

I choose products that are environmentally friendly. \*

- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

I think that meat substitute products are environmentally friendly. \*

- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

I choose products that are sustainable. \*

- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

I think of myself as a health-conscious consumer. \*

- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

I choose carefully what products to choose, to ensure good health. \*

- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

I think that meat substitute products are healthy. \*

- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

5th

People who are important to me, approve my consumption of meat substitute products. \*

- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

People important to me, think that I should buy meat substitute products. \*

- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

If someone important to me is consuming meat substitute products, it affects positively to my own attitude towards purchasing meat substitute products. \*

- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

6th

The price of the meat substitute product is important to me. \*

- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

Meat substitute products are too expensive. \*

- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

7th

How often do you purchase meat substitute products? \*

- Once in a week or more
- Once in every 2 weeks
- Once a month
- Once in every couple months
- Once in a year or less often

I intend to buy meat substitute products in the near future. \*

- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

My attitude towards meat substitute products affect my intention to purchase them. \*

- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

Which factors motivates you the most when making a decision to purchase meat substitute products? (Choose maximum of 3 choices) \*

- Taste
- Texture
- Price
- Appearance
- Familiarity of the product
- Ethicality (eg. animal welfare)
- Sustainability
- Environmental friendly
- My health
- My diet
- Muu: \_\_\_\_\_

Which factors are the biggest barriers that affect you the most when making a decision to purchase meat substitute products? (Choose maximum of 3 choices) \*

- Taste
- Texture
- Price
- Appearance
- Unfamiliarity of the product
- Ethicality (eg. animal welfare)
- Sustainability
- Environmental friendly
- My health
- My diet
- There are none
- Limited availability
- Too hard to prepare
- Muu: \_\_\_\_\_

If the biggest factors that are barriers to purchase meat substitute products would improve, I would purchase them more often. \*

- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree
- I am already purchasing meat substitute products only

If the biggest factors that are barriers to purchase meat substitute products would improve, I would pay more for meat substitute products. \*

- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree
- I am already purchasing meat substitute products only

If the biggest factors that are barriers to purchase meat substitute products would improve, I would replace animal-based meat to meat substitute products in my diet. \*

- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree
- I am already purchasing meat substitute products only

10th

Is your nationality Finnish? \*

- Yes
- No

Gender \*

- Male
- Female
- Muu: \_\_\_\_\_

In which age group do you belong? \*

- <18
- 18-30
- 31-40
- 41-50
- 51-60
- 61+

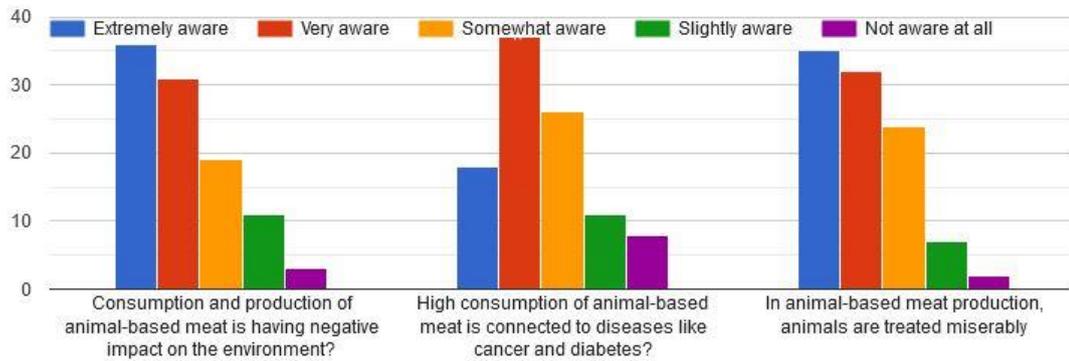
Consumers attitudes towards meat substitute products and key factors influencing the decision-making of Finnish consumers

Thank you for your participation!

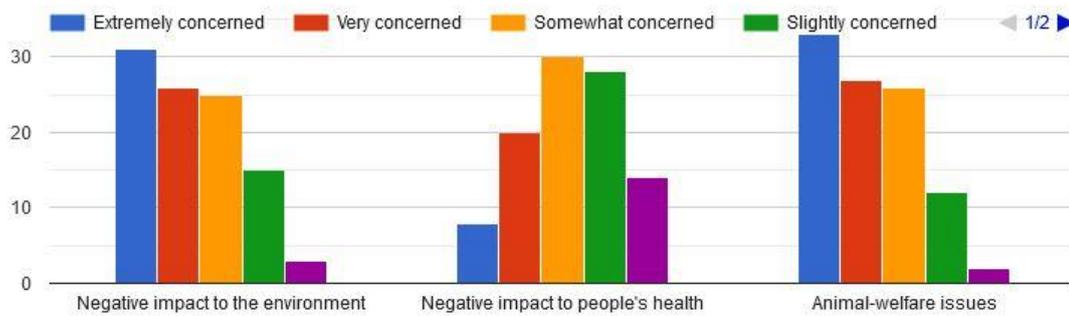
## Appendix 2. Results of the questionnaire



How aware of you are that:



What is your level of concern that production and consumption of animal-based meat creates?

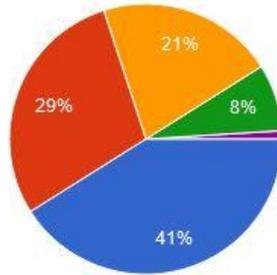


2nd

I think that buying meat substitute products is reasonable.



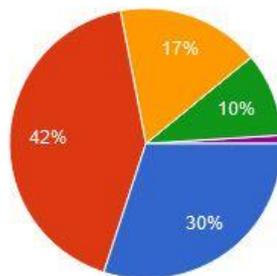
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- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

I think that meat substitute products are sufficiently available.

100 vastausta



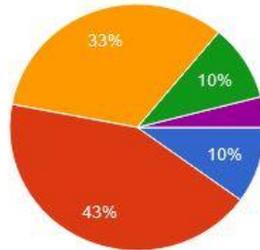
- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

3rd

I consider myself as a environmentally aware consumer.



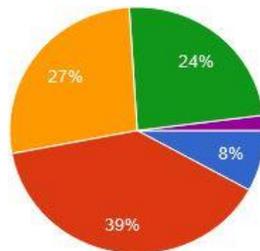
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- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

I choose products that are environmentally friendly.

100 vastausta

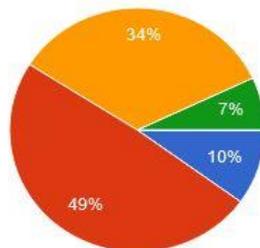


- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

I think that meat substitute products are environmentally friendly.



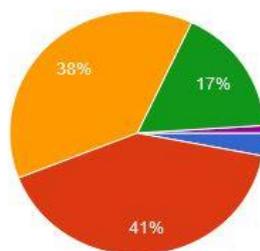
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- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

I choose products that are sustainable.

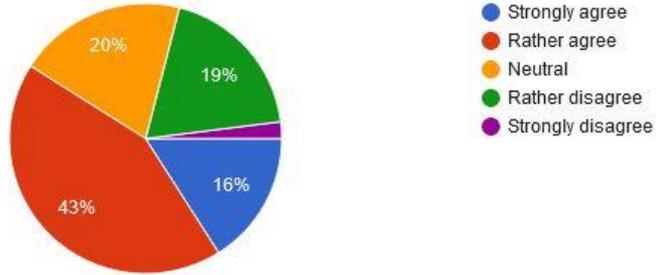
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- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

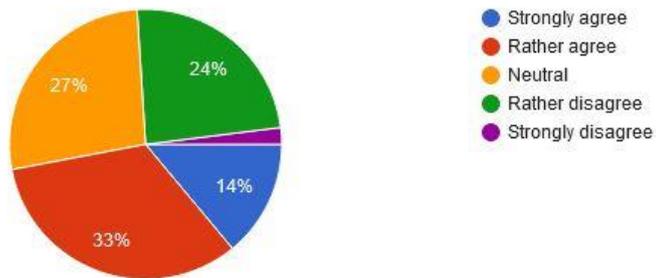
I think of myself as a health-conscious consumer.

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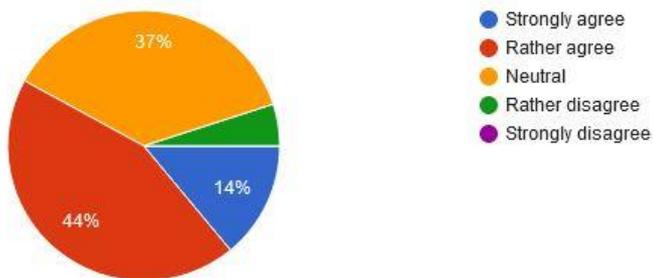
I choose carefully what products to choose, to ensure good health.

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I think that meat substitute products are healthy.

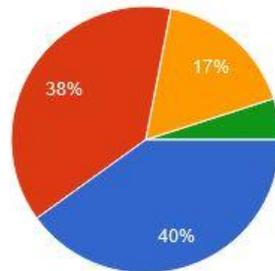
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People who are important to me, approve my consumption of meat substitute products.



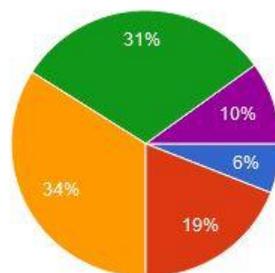
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- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

People important to me, think that I should buy meat substitute products.

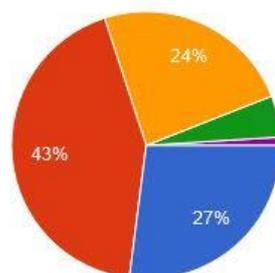
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- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

If someone important to me is consuming meat substitute products, it affects positively to my own attitude towards purchasing meat substitute products.

100 vastausta

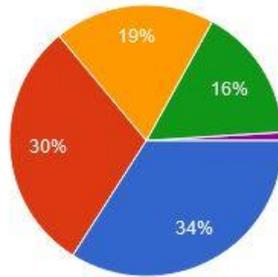


- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

The price of the meat substitute product is important to me.



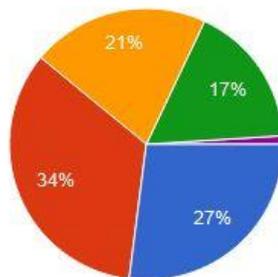
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- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

Meat substitute products are too expensive.

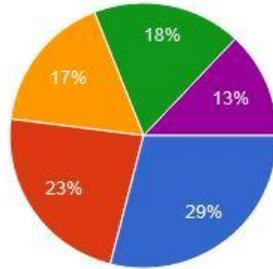
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- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

How often do you purchase meat substitute products?

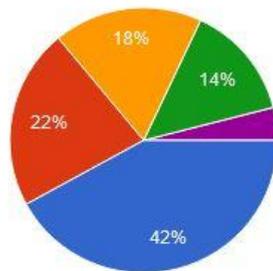
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- Once in a week or more
- Once in every 2 weeks
- Once a month
- Once in every couple months
- Once in a year or less often

I intend to buy meat substitute products in the near future.

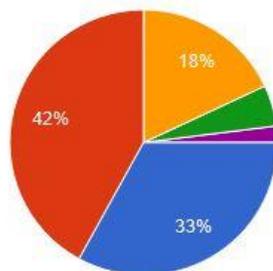
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- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

My attitude towards meat substitute products affect my intention to purchase them.

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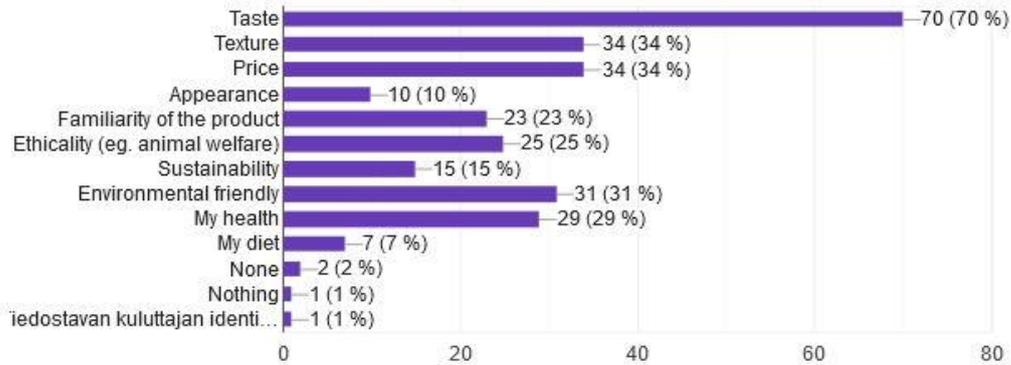


- Strongly agree
- Rather agree
- Neutral
- Rather disagree
- Strongly disagree

Which factors motivates you the most when making a decision to purchase meat substitute products? (Choose maximum of 3 choices)

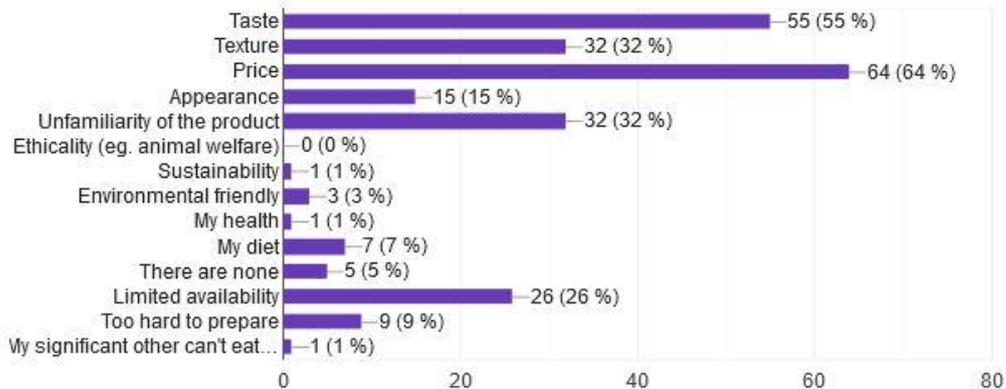


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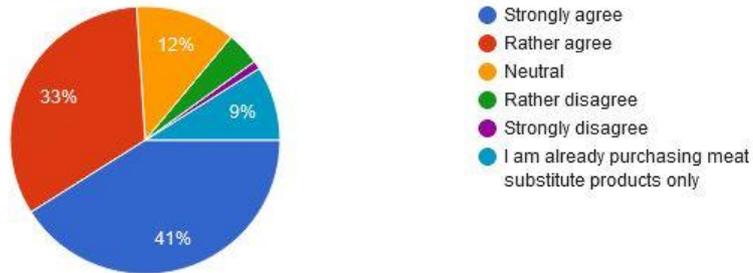
Which factors are the biggest barriers that affect you the most when making a decision to purchase meat substitute products? (Choose maximum of 3 choices)

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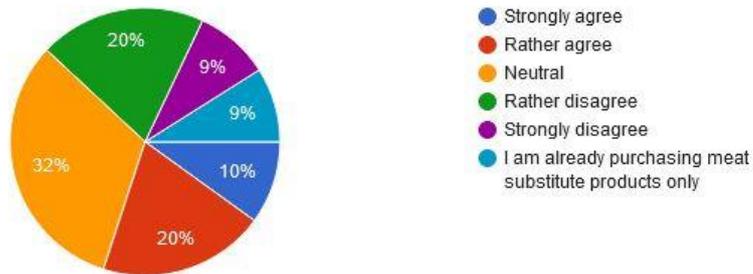
If the biggest factors that are barriers to purchase meat substitute products would improve, I would purchase them more often. □

100 vastausta



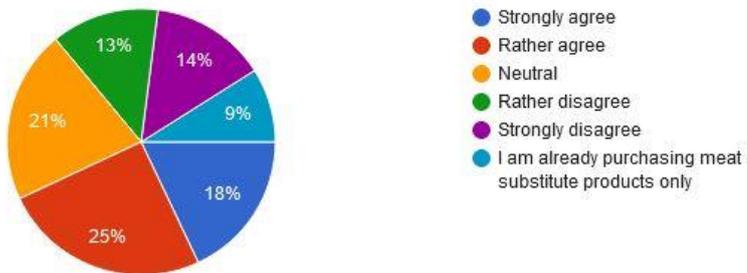
If the biggest factors that are barriers to purchase meat substitute products would improve, I would pay more for meat substitute products.

100 vastausta



If the biggest factors that are barriers to purchase meat substitute products would improve, I would replace animal-based meat to meat substitute products in my diet.

100 vastausta



10th

Is your nationality Finnish?

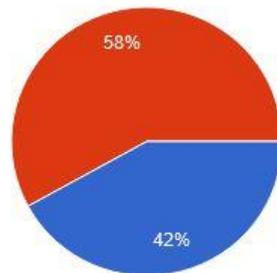
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Gender

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● Male  
● Female

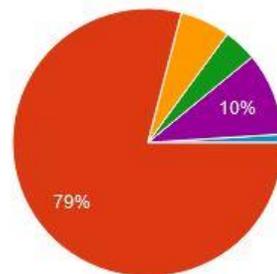


In which age group do you belong?

100 vastausta



● <18  
● 18-30  
● 31-40  
● 41-50  
● 51-60  
● 61+



Thank you for your participation!

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